

IN THE CLAIMS:

Please amend claims 1-3, 5, 7-10, 12-14, and 16-18 as follows. Please add new claims 19 and 20 as follows. Please cancel claims 6 and 15 without prejudice or disclaimer.

1. (Currently Amended) ~~A method for fast recovery of a host connection in a redundant tree structured local area network, the method, comprising:~~

monitoring in an intermediate tree element the state of a critical up-link, the critical up-link being an only link from the intermediate tree element to an upper stage tree element in the tree structure;

detecting, in the intermediate tree element, a link-down state in the critical up-link;
and

setting, in the intermediate tree element, a dependent down-link in a link-down state, if said critical up-link is detected to be in the link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link from the intermediate tree element to the lower stage tree element in the tree structure,

wherein the redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage.

2. (Currently Amended) The method according to claim 1, further comprising:
specifying the up-link of a network element as a critical up-link, if the failure of said link affects the data flow of a down-link of said network element.

3. (Currently Amended) The method according to claim 1, further comprising:
specifying the link of a network element as a dependent down-link, if there is a critical up-link between said down-link and a next network element.

4. (Previously Presented) The method according to claim 1, wherein the monitoring of the state of a critical up-link is accomplished by monitoring the quality of the data flow on the link.

5. (Currently Amended) ~~A method for fast recovery of a host connection in a redundant tree structured local area network, the method,~~ comprising:
monitoring, in a host device, the state of an active up-link in a host device leading to an intermediate tree element in a first tree; and
detecting, in the host device, a link-down state in the active up-link,
notifying host software about the link-down state, and
starting a recovery process in the host device by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree, if said active link is in a link-down state.

wherein the redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage.

Claim 6. (Canceled)

7. (Currently Amended) The method according to claim 5, wherein the recovery process comprises:

~~notifying host software of a link failure in the active up-link;~~

checking the status of a redundant up-link, and if said up-link is in the link down state; and

transferring said host to a predetermined default mode operation.

8. (Currently Amended) The method of claim ~~6~~5, wherein the redundant up-link is a doubling up-link for the active up-link.

9. (Currently Amended) ~~A~~An apparatus for fast recovering of a host connection in ~~a redundant tree structured local area network, the apparatus comprises, comprising:~~

a controller configured to

monitor the state of a critical up-link, the critical up-link being an only link to an upper stage tree element in the tree structure of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises to at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage,

detect a link-down state in the critical up-link, and

set a dependent down-link in a link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link to the lower stage tree element in the tree structure.

~~a monitoring device configured to monitor the state of a critical up-link, and to set a dependent down-link in a link-down state, if said critical up-link is detected to be in the link-down state~~

10. (Currently Amended) The apparatus according to claim 9, ~~wherein the controller further comprises~~ comprising:

a physical layer ~~unit~~ configured to monitor the physical state of said up-link; and
a media access controller configured to change the state of the down-link.

11. (Previously Presented) The apparatus according to claim 9, wherein the up-link of the apparatus is a critical up-link, if the failure of said link affects the data flow of a down-link of said apparatus.

12. (Currently Amended) The apparatus according to claim 9, wherein link of the apparatus is a dependent down-link, if there is a critical up-link between said down-link and a next network element.

13. (Currently Amended) The apparatus according to claim 9, wherein said monitoring is performed controller comprising with an Ethernet controller.

14. (Currently Amended) ~~A host device in a redundant tree structured local area network, the host device~~An apparatus, comprising:

a controller configured to

monitor the state of an active up-link, and to start a recovery process if said active link is in a link down state leading to an intermediate tree element in a first tree of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage.

detect a link-down state in the active up-link,
notify host software about the link-down state, and
start a recovery process by changing the failed active up-link to a redundant
up-link leading to an upper stage intermediate tree element in a second tree.

Claim 15. (Canceled)

16. (Currently Amended) An apparatus, comprising:

monitoring means for monitoring the state of a critical up-link, the critical up-link
being an only link to an upper stage tree element in the tree structure of a redundant tree
structured local area network comprising at least two separate subtrees ending to a set of
same host devices, wherein each subtree comprises at least one intermediate stage and
wherein an intermediate stage tree element of one tree is not directly connected to an
intermediate stage tree element of another tree at the same stage;

detecting means for detecting a link-down state in the critical up-link; and

setting means for setting a dependent down-link in a link-down state, if said
critical up-link is detected to be in a link-down state the dependent down-link leading to a
lower stage tree element in the tree structure and being an only link to the lower stage
tree element in the tree structure.

17. (Currently Amended) ~~A host device~~An apparatus, comprising:

monitoring means for monitoring the state of an active up-link leading to an intermediate tree element in a first tree of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage; and

detecting means for detecting a link-down state in the active up-link;

notifying means for notifying host software about the link-down state; and

starting means for starting a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree if said active link is in the link-down state.

18. (Currently Amended) ~~A system for fast recovery of a host connection in a redundant tree structured local area network, the system, comprising:~~

a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage;

at least one apparatus comprising a controller configured to monitor the state of a critical up-link, the critical up-link being an only link from the intermediate tree element to an upper stage tree element in the tree structure; to detect a link-down state in the

critical up-link, and to set a dependent down-link in a link-down state, if said critical up-link is detected to be in the link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link from the intermediate tree element to the lower stage tree element in the tree structure~~and to set a dependent down-link in a link-down state, if the critical up-link is detected to be in a link-down state; and~~

at least one host device comprising a controller configured to monitor the state of an active up-link in a host device leading to an intermediate tree element in a first tree, to detect a link-down state in the active up-link, to notify host software about the link-down state, and to start a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree[[,]]~~and to start a recovery process if said active link is in a link-down state.~~

19. (New) The method of claim 5, further comprising monitoring the state of a critical up-link by monitoring the quality of the data flow on the link.

20. (New) The apparatus according to claim 14, wherein the controller is further configured to:

check the status of a redundant up-link, and if said up-link is in the link down state; and

transfer said host to a predetermined default mode operation.